Avionics/Intelligence and Electronic Warfare Bulletin

"Serving the Needs of the Army's A/IEW Community"

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Remote Sensor Systems (RSS) Provide a Constant Watch on the Battlefield

The Remote Sensor System, previously known as both I-REMBASS and REMBASS, is an Unattended Ground Sensor (UGS) system that detects, classifies, and determines direction of movement of personnel, wheeled vehicles, and tracked vehicles. It provides a world-wide deployable, day/night, all-weather, early warning surveillance, and target classification capability to Warfighters. Units can be employed and operate up to 30 days, or longer, without maintenance.

The sensors are built for any level of conflict, including special operations, low intensity conflict, and counter narcotics operations. The sensors are emplaced along likely avenues of approach or intrusion and respond to seismic and acoustic disturbances, infrared energy, and magnetic field changes. The sensor information is incorporated into short, digital messages and communicated by VHF radio burst transmission.

The Seismic/Acoustic (S/A) sensor is a target-classifying sensor containing a sensitive microphone and a seismic detector that are both buried in-ground, with only 1" of the microphone above ground. The S/A employs sophisticated algorithms to detect and validate the presence of targets. The S/A sensor discriminates among personnel, wheeled vehicles, and tracked vehicles. The sensor's complex signal processing algorithm results in a high probability of detection with an extremely low nuisance alarm rate.

The Passive Infrared (PIR) and Magnetic (MAG) sensors are implemented as independent modules that work in conjunction with the S/A sensor. These modules determine and report the target's direction and can be used to count targets. The PIR and MAG sensors also feature false alarm rejection algorithms.

The AN/PSQ-7 Remote Monitor-Programmer (M-P) is used to receive the target detection and classification data, either directly or through repeaters. The monitoring element of the M-P unit acts as an automated sensor data collection device and provides information to be displayed on a laptop PC running the AN/PYY-1 Advanced Mapping Display System (AMDS). The programming element of the M-P is used to assign identification codes to the sensors and select the frequency channel used for receiving the information from the sensors.

The AMDS is a product developed, and under full Life Cycle Support, by the CECOM Software Engineering Center. The AMDS

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From the Senior Editor's Desk

Written by Mr. Joseph Ingrao, A/IEW Division Chief

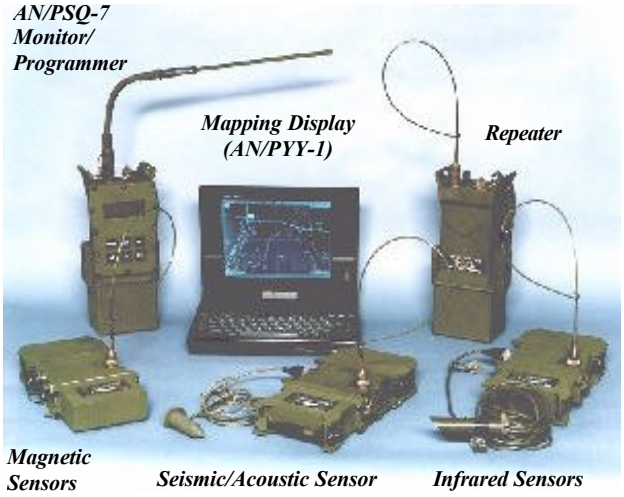
Pride In Your Unit, Pride In Being Unique

Visions communicate what make us singular -- they set us apart from everyone else. Visions must differentiate us from others if we're to attract and retain employees and customers. There is no advantage in working for, buying from, or investing in an organization that does exactly the same thing as the one across the street or down the hall. Only when people understand how we're truly distinctive, how we stand out in the crowd, will they want to sign up with us. After all, how would you like to go to work every day if the sign over the front door read, "Welcome to our place. We're just like everyone else." ?

Uniqueness fosters pride. It boosts the self-respect and self-esteem of everyone associated with the organization. The prouder our employees are of our products and services, the more loyal they are likely to be. One of the best ways to discover the uniqueness in your organization's vision is to begin by asking why your customers, internal or external, would want your particular service or product.

Uniqueness also enables smaller units within large organizations to have their own vision while still being encompassed by the collective vision. While every unit within the organization must be aligned with the overall organizational vision, it can express its distinctive purpose with the larger whole. Every function and every department can differentiate itself by finding its most distinctive qualities. Each can be proud of its ideal and unique image of its future as it works toward the common future of the United States Army.

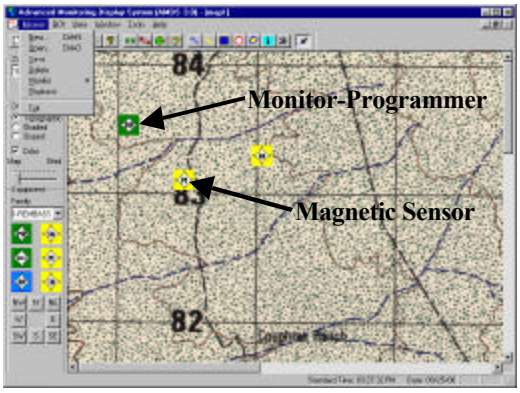
RSS (cont'd)



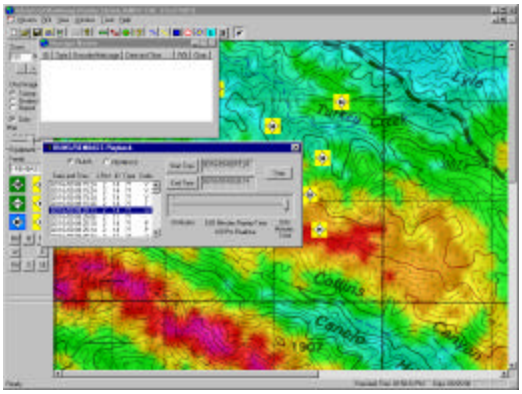
is programmed by the user to generate a mapped display of an area of interest (AOI). Mapping information is provided by the National Imagery and Mapping Agency (NIMA) in the form of Arc Digitized Raster Graphics (ADRG) and Digitized Terrain and Elevation Data (DTED) maps. These two forms of information are then merged together to portray the AOI. The DTED information is color coded according to elevation groupings that are alterable by the user (the location of the sensors and Monitor-Programmer are shown as icons on the map at their respective location coordinates), thereby enhancing the quality of the data.

When an external event triggers the sensors, the icon shown on the AOI map will change color to indicate that a presence has been detected. When the S/A detector is triggered, the map icon will display either the symbol "P" for personnel movement, "W" for wheeled vehicles or "T" for tracked vehicles. When the magnetic sensor is triggered, the icon will display the direction of motion by degrees from North.

The PIR is a directional detector in that there is a left and right side to the unit and, therefore, can determine whether the object detected is moving from left-to-right, or right-to-left. When an object is detected by the PIR, the map icon will display an arrow pointing either left or right depending on the direction of the detected object. By creating "strings" of sensors, the information can be used to determine length of columns and approximate speed of personnel and vehicles. Information concerning the detected objects is transformed into an Enemy Observation Report (EOBSREP), in accordance with the structure defined in the U.S. Message Text Format for an EOBSREP, and is relayed to tactical operations centers and higher echelons.



Area of Interest shown with emplaced sensors



AOI shown with DTED enhancement and data received from sensors

Currently, the RSS is in use by the Air Force, Army, Marines, National Guard and Foreign Military sales customers. The equipment is fully qualified for "worst case" military environmental extremes. Over 6,000 pieces of this type equipment are in use worldwide. The RSS elements are currently being re-designed to be smaller, lighter and provide a longer in-ground life. The new design will be replacing the current RSS elements as they are depleted from stock.

For additional information on Remote Sensor Systems, please contact the following POC:

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ARAT Away Team Heading to Germany and Korea to Conduct Training

"Around the World in 14 Days" is not a new idea for a movie, but the Army Reprogramming Analysis Team (ARAT) will be traveling to both Germany and Korea in 14 days (during late November and early December 2001) to provide Army Aviation units with ARAT reprogramming and connectivity processes training. The ARAT believes the training is a great opportunity for pilots, Electronic Warfare Officers and AN/APR-39A(V)1 maintainers to obtain hands-on training on both the system and reprogramming capabilities.

The training sessions will provide users with an understanding of the concepts, capabilities and processes to employ, and reprogram the AN/APR-39A(V)1. The training will cover topics such as the ARAT Communications Infrastructure and associated services, EWOSS2000, dial-up setup for SIPRNet, Multi-Service Electronic Warfare Data Distribution System (MSEWDDS), and available encryption devices (STE, STU-III, Palladium). The training team will be issuing AN/APR-39A(V)1 training CDs, ARAT Software Toolbox CD's, and informational handouts to attendees.

An additional benefit of this training will be the feedback received from Warfighters concerning system issues, and the team having an opportunity to provide on-the-spot solutions, to the extent possible, to those concerns.

The final schedule for the training mission is still being developed, but the current schedule is:

Germany:

Monday, 26 November	Arrive in Germany
Tuesday, 27 November	4th Brigade of the 1st Infantry Division at Katterbach or near Ansbach
Wednesday, 28 November	11th Aviation Regiment at Illesheim
Thursday, 29 November	12th Aviation Brigade at Giebelstadt
Friday, 30 November	4th Brigade of the 1st Armored Division at Fliegerhorst Army Airfield
Saturday, 1 December	Depart for Korea

Korea:

Sunday, 2 December	Arrive in Korea
Monday, 3 December	4-7th Cav, Camp Stanton
Tuesday, 4 December	2nd ID, Camp Stanley
Wednesday, 5 December	3rd MI BN, Camp Humphreys
Thursday, 6 December	6th Cavalry, 2-52 Avn BN, Camp Humphreys
Friday, 7 December	1-6th Cavalry, Camp Eagle
Saturday, 8 December	Depart for US

Interest in attending these sessions has been very strong and some have reached their maximum capacity. But the ARAT is committed to reaching as many interested Warfighters as possible during this training so, if you have already registered, contact your unit's POC for the exact time and place of your training. If you are not in any of the units listed but would like to attend, contact one of the respective POCs below:

Germany POC	**Korea POC**
Mr. Andrew Poulter, European Software Support Office	Mr. Sok Kim, Korean Software Support Office
DSN : (314) 375-8519	DSN: (315) 741-6052
Tel: 0621-487-8519	Tel: (031) 723-7812
	Cell: (018) 863-5756
Email: Andrew.Poulter@hq.amceur.army.mil	Email: kimsy@usfk.korea.army.mil

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ARAT (cont'd)

The ARAT training team is looking forward to the mission, and providing the Warfighters with a great training opportunity.

Submitted by Mr. Michael Crapanzano, ILEX Systems

Advanced HUD Assists Army Aviation Force Modernization

Aviator's Night Vision Goggle or Night Vision Imaging System

The Advanced Aviator's Night Vision Imaging System (ANVIS)/ Heads-Up-Display (Advanced HUD) is an advanced Electro-Optical system that provides a pilot and co-pilot with a basis for a comprehensive flight management system. It is integrated with the Aviators Night Vision Goggle (NVG), which is a lightweight, helmet-mounted self-contained night vision system that provides imagery sufficient for an aviator to complete nighttime missions in starlit conditions.

The CECOM SEC, with software engineering support from Sensor Technologies, Inc., completed software development of the Advanced HUD in November 2000 and performed successful Software Formal Qualification Testing for the Office of the Program Manager, Cargo Helicopters, in December 2000. Successful software ground and flight testing on the CH-47D(IE) Chinook Cargo Helicopter was also conducted at Hunter Army Airfield, Savannah, GA in February and March 2001.

Sample Advanced HUD Display of Flight Data Symbology

The Advanced HUD system senses, collects and displays critical flight information (such as altitude, airspeed, attitude, compass heading, engine torque, and engine temperature) from aircraft sensors, converts it into visual imagery and transmits the information to the NVG, allowing the pilot and copilot heads-up flying without the need to look down continuously at the cockpit instrumentation panel. The data is overlaid on the goggle imagery to provide the pilot and copilot with integrated night scene and critical flight data symbology. This technology provides significant operational advantages and increases safety during night missions. The Army inventory will include approximately 1,900 Advanced HUD systems for use on the UH-60A/L Blackhawk and CH-47D Chinook platforms.

The Advanced HUD and CH-47D(IE) (where 'IE' is short for 'Improved Engine') Chinook Cargo Helicopter are significant components of the Army's Aviation Force Modernization Plan. Part of the Plan calls for the upgrade of the CH-47D and CH-47F engines from the present T55-GA-712 model to the T55-GA-714. The new T55-GA-714 engines will provide an increased lift capability and increased unfueled combat radius, and also introduces new sensor information to the Advanced HUD System. These include new engine parametric units and values, and higher temperature operating limits. SEC undertook the task of modifying the Advanced HUD software to interpret and display this new sensor information in support of the CH-47D(IE), as well as those aircraft platforms currently flying with the Advanced HUD System.

Mr. Lo and Mr. Kurdyla Inspect Advanced HUD System Installation on the CH-47D(IE)

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AHUD (cont'd)

After learning of the modified Advanced HUD software development, the Assistant Program Manager, Technology Applications Program Office (APM TAPO) expressed an interest in applying and testing the software on the Army's Special Operations Aviation Regiment's MH-47D(IE) Cargo Helicopter Platform, with future plans for the MH-47E and MH-60K platforms. Using its ANVIS/HUD Software Maintenance Facility, SEC uploaded and successfully tested the modified software on the MH-47D(IE)'s Advanced HUD System in a laboratory environment. SEC then shipped the Advanced HUD system to APM TAPO in March 2001 for software ground and flight tests.

Submitted by Mr. Kwok Lo, CECOM SEC

IMPROVED DATA MODEM

Hardware Series 302 with Software Enhancements - Version 2.9I

The Improved Data Modem (IDM) is a high-speed digital data link modem that is capable of passing mission and targeting data, in near real-time, among Army Aviation platforms, artillery Fire Direction Centers, and other elements supporting the Army Tactical Fire Direction System (TACFIRE) and Air Force Application Program Development (AFAPD) communication protocols. Support for the Joint Variable Message Format (JVMF) protocol is under active development. The IDM provides four simultaneously operating half-duplex radio channels that can operate at rates of 75 to 16,000 bits per second in either analog or digital mode. On the aircraft, the IDM interfaces to other subsystems via the MIL-STD-1553B digital data bus. Mission processing for TACFIRE messages is performed within the IDM, while AFAPD-related mission processing is completed in other sub-systems.

The current software release was developed in 1999 and software support has since transitioned to the SEC Avionics Branch. Based on feedback from users, and at the direction of PM-AEC (now PM-AES), several improvements and enhancements have been made to the TACFIRE mission capabilities. Final Qualification Testing (FQT) is currently under way and fielding of the new software (Version 2.9I) is scheduled to take place shortly.

The specific changes include the following:

- Streamlining the flow of AIR to AIR missions, particularly Hellfire, has reduced crew workload.
- Safety angle limits for firing have been updated in accordance with latest guidance.
- Target location information (for example, from the Mast Mounted Sight of the Kiowa OH-58D) is now applied automatically to the mission or report of interest while providing the crew with the ability to command an update as needed.
- The format and layout of the various missions and reports have been made as consistent and identical as possible to reduce crew learning and execution time.
- The ability to suppress all radio transmission while allowing reception has been added.
- Scrolling was added to the display of the radio subscriber lists since the number of subscribers possible cannot be displayed on a single static page.

All of the requirements for the IDM Version 2.9I were coordinated directly with IDM users and TRADOC representatives. This version of the IDM software will provide the pilots with much improved features thus enhancing combat capabilities in the digitized-battlefield.

Submitted by Mr. Edward F. Wuyscik, Avionics Branch, SEC

COMMANDERS' TACTICAL TERMINAL - THREE CHANNEL (CTT3) REVISION E AND USER'S SPECIFIC PROCESSOR (USP) 10A SOFTWARE AND RELEASE NOTES NOW AVAILABLE

The CTT3 is a three-channel Ultra High Frequency Satellite Communications/line-of-sight intelligence dissemination terminal. It provides the capability to receive three simultaneous channels of intelligence information from the Tactical Reconnaissance Intelligence eXchange System (TRIXS), Tactical Information Broadcast Service (TIBS), Tactical Related APplications (TRAP), and TActical Data Intelligence eXchange System-B (TADIXS-B) network broadcasts. Also, the CTT3 provides a capability to receive two simultaneous channels of TRIXS, TIBS, and TRAP/ TADIXS-B while transmitting and receiving TRIXS or TIBS on the third channel.

On behalf of PM Joint Tactical Terminal/Common Integrated Broadcast Service-Modules (JTT/CIBS-M), the CECOM SEC CTT team completed and began distributing CTT3 Revision E (REV E) and USP 10A software and Software Release Notes to CTT3 users, Host System Managers (HSMs) and software maintainers.

CTT3 REVISION E SOFTWARE

CTT3 REV E was developed to correct the following problems:

- Channel 2 QD TADIXS-B "goes to sleep"
- Failure to use the operator entered TDX scan dwell if network synchronization was lost and the CTT3 performed network resynchronization (scan defaulted to 120 seconds)
- Failure to extinguish the memory clear lamp after a successful KG-2 key load
- Failure of the CTT3 to send the TIBS bandwidth request message to reduce or eliminate allocated bandwidth until after the CTT3 had data to send
- Intermittent failure of the Black Input/Output Card during the operator-initiated BIT when the CTT3 was initially powered up
- Incorrect leap year after CTT3 date was manually changed
- Errant RRT Down/RRT Up Alert messages received by the CTT3 host
- CD-81 Busy Lockup
- Joint Tactical Ground Station (JTAGS) Korea Lockup at midnight
- Non-compliance issues with TIBS IOS discovered during JTT interoperability testing
- Operator entered terminal configuration sent prior to USP Download is lost after USP Download

CTT3 REV E supports the following Effectivity 1.6 network requirements:

- Variable Length Transmission Format (VLTF) Type 15 message for Theater Missile Defense (TMD) co-variant matrix
- Electronic Order of Battle transfer and updates
- Over-the-air reset of Duplicate Screening Table
- Update of Duplicate Screening Table to include VLTF messages

CTT3 REV E also supports Effectivity 2.0 Duplicate Screening of ELINT, Type 4 messages and Non- ELINT, Type 7 messages with Report Number changes, and the following TIBS network functionality and protocols (equivalent to REV P of the USAF TIU/G):

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CTT3 (cont'd)

- Master Compatibility
- Command Remote Sign-Off
- TIBS High Priority Talker
- Improved Talker Statistics

USP 10A SOFTWARE

USP 10A now correctly processes the following:

- Enhanced precision fields
- Creation of Computed Gross Geographic filters when filters cross hemispheres
- Circular filters
- Simplified filtering algorithms
- Accurate reporting for four-zip ELNOTS (e.g., L0000)
- No statement processing for base value fields when only extended fields received
- TIBS reset processing for multiple fields
- MT-10 (ELINT Contact Report) duplicate screening

Some of the new functionality incorporated into USP 10A includes:

- Processing of all TIBS REV E data, including the introduction of subnet identifiers in TIBS
- All Tactical Data Intercomputer Message Formats (TDIMF) REV D blocks/fields, including those TDIMF REV D blocks/fields that were not processed by USP 9A
- All TDIMF REV E blocks/fields
- New FORCODE field introduced in TDDS 2.0
- Rounding of all data fields that require conversion to the TDIMF metric standard.

USP 10A also supports TDIMF REV D or REV E output to the host based on host selection, now allows the host to take advantage of Data Element and Gross Data Element Filtering when filters are enabled by the host. This reduces the complexity of data element filtering. In addition, MT-2 and MT-5 processing was also removed from USP 10A.

CTT3 REVISION E AND USP 10A SOFTWARE RELEASE NOTES

The CTT3 REV E and USP 10A corrections, enhancements and deletions are described in the SEC prepared USP 10A and CTT3 REV E Software Release Notes. Both Software Release Notes provide a description of the previously existing anomaly or new/removed functionality, and provides guidance as to whether CTT3 REV E (or USP 10A) software installation is required to support this USP (or CTT3 REV E) change. The release notes help clarify the impact of the USP (or CTT3 REV E) changes on the CTT3 Host Tactical Data Processor (TDP) (e.g. Joint STARS Common Ground Station, JTAGS, USMC TERPES, etc.) software if USP 10A (or CTT3 REV E) is, or is not, utilized. Additional hybrid host message changes that can be utilized are described, and possible problems that have been observed to date when utilizing the CTT3 and USP interface are provided, as are some guidelines to aid the HSMs and software maintainers in their determination about whether or not to install USP 10A (or CTT3 REV E), with/without CTT3 REV E (or USP 10A), and with/without requiring a Host TDP software update.

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CTT3 (cont'd)

The PM JTT/CIBS-M, U.S. Air Force Detachment 2, Raytheon, Greenville, TX, the developer and maintainer of the USP software, and Raytheon System Company, Saint Petersburg, FL, the developer and maintainer of the CTT3 software, played an integral part in assisting SEC in preparing the software release notes. Feedback on past and present CTT3 and USP Software Release Notes has been extremely positive from HSMs and CTT3 users.

For additional information, please contact the following POCs:

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CECOM SEC Supports the Integrated Meteorological System (IMETS)

Introduction

The IMETS is a mobile, tactical, automated weather data receiving, processing, and dissemination system that serves as the digital weather product interface to the Tactical Operations Center (TOC). The system is designed to provide timely weather, environmental, and decision-aid information to multiple command elements at echelons where Air Force Combat Weather Command (AFCWC) Combat Weather Teams (CWT) provide support to the U.S. Army.

The IMETS provides digital weather support to units - from Echelons Above Corps (EAC) down to the tactical level (such as aviation battalions) - and offers products that enable tactical commanders and staffs to fight more efficiently. The IMETS helps planners understand the impacts of weather on friendly and threat systems, exploit the ability of high tech systems to outperform threat systems, and anticipate Army advantages during adverse weather conditions. During mission execution in adverse weather, the IMETS helps the Army to evaluate when it can see, shoot, and communicate better than threat systems.

As part of the Army Battle Command Systems (ABCS), the IMETS provides direct electronic communication of weather information to planners and decision-makers. The system delivers detailed weather forecasts with an increased resolution, not previously available, to identify variations in weather within the geography of the battlefield. Forecasts are prepared with lead times long enough to match the Warfighter's planning and execution horizon. The IMETS enhances situation awareness by providing visualization of weather on the Common Tactical Picture (CTP) through meaningful and directly useable weather forecasts, warnings, and interpretations of weather effects, to the supported tactical commander and staff to assist in executing today's battle or planning future operations.

Weather Data Sources

To produce digital weather information, the IMETS combines advanced observations from Meteorological Satellites (METSAT), upper air information, data from surface weather observing networks, and numerical models to

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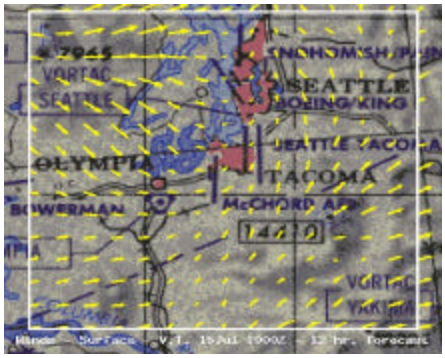
IMETS (cont'd)

build a Gridded Meteorological Database (GMDB) in the Area of Operations (AO). This enables the CWT to apply weather effects and analysis software, based on Warfighter-stated tactical criteria, to identify areas or times where adverse weather may impact warfighting capabilities.

U.S. Air Force (USAF) tactical systems, when deployed, are the primary source of METSAT information. For example, this information would enable the CWT to identify precipitation, fog, and low clouds in valleys where expensive Army aviation and artillery smart munitions may be deployed during deep operations. METSAT-derived surface temperatures would help the CWT forecast the capability of smart munitions to find thermal targets against the existing background environment. Knowledge of weather in target areas, far forward in threat-occupied territory, would allow commanders at tactical echelons to avoid adverse weather conditions and save costly smart munitions for "high-

The IMETS also delivers METSAT-derived surface soil moisture and ground temperature information in threat-occupied territory. This information helps to show areas where threat forces cannot maneuver, or where threat forces are funneled into specific avenues of approach, thus assisting the intelligence officer in identifying choke points for high priority targets.



Where civil weather observations do not exist, CWTs and Army units make surface weather observations in the AO. As an example, the IMETS completes building the current weather picture by adding Artillery Meteorological System (ARTYMET) upper air balloon soundings and surface weather observations to the weather data information database. Additionally, Mobile Air Traffic Service (MATS) towers, the Intelligence sections at brigades and battalions, and chemical defense units take observations and provide them to the IMETS. This information contributes to the current weather picture provided to other ABCS users such as target planners, Aviation Mission Planning System (AMPS) users, chemical officers, terrain analysts, logisticians, ammunition re-supply teams, and combat service support activities.

In addition to the current picture of weather conditions, Air Force Weather (AFW) Strategic Centers and regional Operational Weather Squadrons (OWS) build forecasts based on numerical models, and broadcasts them to the IMETS. These forecasts can range in length from 120 hours for theater planning, down to 24 hours or less for battalion operations.

The USAF OWS is the regional facility that provides supporting theater-wide data and supplementary forecasts to support each echelon. The OWS provides the IMETS with the long-range forecasts (generally 3-5 days) to support planning at Corps level and above. Corps planners use long-range forecasts to adjust timing of plans where weather delays can be expected, re-supply of critical warfighting items when weather affects re-supply routes, and battle planning when severe weather such as floods or widespread thunderstorms limit maneuverability, night-vision systems, and aviation warfighting capabilities. The IMETS receives centrally prepared forecast information over tactical antennas/receivers provided by AFW or through other Army Common User Systems (ACUS).

Users apply forecasts of weather effects to help limit weather impacts and modify plans. In support of air operations, the IMETS can provide short-range, detailed aviation execution forecasts and planning information

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IMETS (cont'd)

concerning cloud heights, visibility, and precipitation for each landing zone, enroute flying leg, or attack target. The CWT uses the "commander's intent" and detailed plans to help build time-phased weather forecasts to support operations.

IMETS Configuration

The IMETS contains a standard configuration of Common Hardware/ Software Version-2 (CHS-2) inside a Standard Integrated Command Post (SICPS) Rigid Wall Shelter (RWS), which is mounted on a High Mobility Multipurpose Wheeled Vehicle-Heavy Variant (HMMWV-H). The IMETS shelter houses the Weather Effects Workstation (WEW), communications equipment, and several Air Force-provided weather collection and processing systems. A towed 10- Kilowatt (kW) generator issued with the system provides power. In support of garrison and training missions, the IMETS is operated inside the perimeter of the military installation. In the field environment, the IMETS is deployed within the secure perimeter of the supported organization, and may be deployed in the shelter configuration or to a fixed facility, bunker, or tent.

IMETS WEW

The WEW is a Solaris-based, CHS-2 workstation used to host the IMETS WEW software. The software receives and processes incoming weather data from multiple sources, creates and maintains databases holding the processed weather information, and provides methods for the CWT to produce and disseminate weather products tailored for combat operations. Applications residing on the WEW include:

- ***Battlescale Forecasting Model (BFM) -*** Evaluates current weather data, produces forecast weather conditions, and creates map overlays depicting current and forecast weather conditions for the AO.
- ***Integrated Weather Effects Decision Aid (IWEDA) -*** Displays a Red/Amber/Green "Go/No-Go" chart and map overlays detailing the effects of weather conditions on specific combat operations and weapons systems.
- ***Night Vision Goggles (NVG) -*** Used to calculate the effectiveness of night vision equipment for any given date, time, and weather condition.
- ***Web Kit -*** Allows the CWT to post text and graphical weather products on the IMETS Web Page for viewing by other users on the TOC Local Area Network (LAN).
- ***Common Message Processor (CMP) -*** Provides the capability to receive, create, and transmit U.S. Message Text Format (USMTF) messages.

Air Force Equipment

In addition to the WEW, CWTs use three standard automated weather forecasting systems, onboard the IMETS, to perform their day-to-day mission:

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IMETS (cont'd)

- ***Small Tactical Terminal (STT)***, which is a Solaris-based, one-way, receive-only system that receives satellite imagery from civilian and defense meteorological satellites. The shelter integration will support either the STT-Enhanced (STT-E) or the STT-Light (STT-L). Software, antenna arrays, and capabilities are identical, but hardware components vary slightly.
- ***Tactical Very Small Aperture Terminal (TVSAT)***, which is an MS Windows NT-based, one-way, receive-only system that receives weather data from AFWA. Data received by the TVSAT is passed to both the WEW and the NTFS via the internal LAN for processing and generation of products.
- ***New Tactical Forecast System (NTFS)***, which is an MS Windows NT-based workstation that hosts a suite of weather forecasting tools used by the IMETS operators to display incoming products and to generate local and area forecasts.

The STT, TVSAT, and NTFS are USAF-owned, USAF-supported systems designed to meet Air Force worldwide forecasting requirements.

Conclusion

The IMETS is the only Army automated system on the battlefield that provides, to Warfighters, real-time, tailored weather information, forecasts, and weather effects on both friendly and hostile weapons systems. Its function is crucial for success on the battlefield since weather forecast input is one of the critical decision elements in such events as airborne, air assault, and smoke operations. In overall operations planning, critical weather parameters may dictate where and when certain categories of "smart weapons" may be employed most effectively and when weapons sighting is most effective or degraded.

Staffed by Air Force CWT personnel responsible for providing vital weather information to Army combat elements, the IMETS is the communications linchpin between Air Force forecast products and Army end-users of these weather products. The Air Force relies upon the IMETS to tailor, refine, and improve upon their initial product sets to the Army mission. This information is ultimately used in the Intelligence Preparation of the Battlefield (IPB) process and supports the Warfighter's decision-making process.

The U.S. Army Communications-Electronics Command (CECOM) Software Engineering Center (SEC) Intelligence Fusion Systems (IFS) Branch provides software engineering support for the IMETS, working with the Army Research Laboratory (ARL), AFCWC, and the IMETS Project Director to maintain and improve the functionality, performance, and reliability of the WEW software applications. All IMETS receive on-site support during normal, exercise, and contingency operations from CECOM SEC IFS Field Support Engineers located throughout the world.

For additional information, please contact:

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Fort Huachuca, AZ 85613-5000
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http://cecom-ifs.army.mil

Submitted by Mr. William Walker, SEC, Intelligence Fusion Branch

AN/APR-39A(V)1/3/4 MLV Update

CECOM SEC – SRI International Reprogramming Kit Internal Research and Development Effort Started

Over the past several months CECOM SEC and Army LIWA ARAT-TA have been receiving reports from the field concerning problems with the Memory Loader/Verifier (MLV) kit software for the AN/APR-39A(V)1/3/4. The most common complaint involves a "divide by zero" or "memory overflow message" that appears when the MLV software is launched from the EWOSS software, but has also been observed in the DOS version of the software. Complaints most commonly involve Intel P-III processors faster than 700 MHz, and use of the Windows 2000 operating system (OS). This problem was last observed and corrected three years ago when Intel P-II Processors were introduced.

The AN/APR-39A(V)1/3/4 reprogramming process has several highly demanding requirements that require drivers that work in the lowest levels of the Windows OS. The MLV software was originally developed for Intel 386/486 and Pentium I compatible processors, and has proved to be extremely reliable on PCs with these processors, running MS-DOS 6.0, Windows 95/98. Until a new version of the MLV kit and software can be released, units are advised to retain a PC with an Intel compatible 486/Pentium I/II processor and the Windows 95/98 OS for MLV purposes. The current MLV software will not run under NT/Windows 2000 due to incompatibilities in serial bus communications layers.

To better handle upcoming changes to PC-platform OSs and processors, CECOM SEC, and its support contractor, SRI International, have identified a promising, inexpensive solution using a PCMCIA serial port card that is compatible with common MLV PCs and the existing MLV cable. The primary objective of the effort is to correct the problems currently being observed while minimizing changes required to the over 300 current MLV kits distributed CONUS and OCONUS.

PCMCIA Card Addition to Current PC & MLV Interface

Rather than wait until FY02 funds became available, SRI International is pursuing a company funded Internal Research and Development (IR&D) program this summer and fall to prototype and test MLV solutions. The development effort includes:

- Re-engineering MLV software to make the low-level communication drivers more fault tolerant for future processors and OSs
- Integrate a PCMCIA serial port card to solve the problems experienced with locating and using serial ports on several models of PCs being used in the field
- Develop serial port drivers for the PCMCIA card that can be used instead of windows I/O drivers
- Develop Windows NT/2000 compatible drivers

It is anticipated that the revised MLV kit will be field tested by November. This will allow FY02 funds to be used to procure and provide upgraded kits to the field soon after the New Year.

(cont'd next page)

MLV UPDATE (cont'd)

CECOM SEC appreciates SRI International's investment in the MLV effort. This is a good example of a contractor partnering with SEC to make sure that the Warfighter receives the best support for our front line systems.

Submitted by Mr. Jon Cory, SRI International

THIS JUST IN - - ARAT SIPRNET DIAL-IN NETWORK CHANGES

In the next few months, ARAT will be transitioning to a new dial-in and e-mail server. Procedures to access the ARAT SIPRNET dial-in network will change minimally. User names will be changed, passwords will be reset, and all current users will receive an e-mail message to their SIPRNET account regarding the changes to their accounts at least two weeks prior to the transition. If after this time users experience any trouble accessing the network, please contact the ARAT engineers and we will assist you.

As far as e-mail is concerned, you will be given the option of using POP3 or HTML to access your ARAT SIPRNET e-mail. More information regarding how to use the new services will be sent to your account prior to the change.

Please continue to check your accounts for these messages to help us make this an easy transition for all. Thank you in advance for your cooperation in this matter.

Submitted by Mr. Marc Demarest, ILEX Systems

PARTING IS SUCH SWEET SORROW….

At least it is for me. For those of you who are not familiar with who I am, I have been the Distribution Manager for the A/IEW Bulletin, as well as the POC for most of you for the MLV Kits and the MDS and ARAT Toolbox CDs.

As I depart SEC and the ARAT to embark on a new journey, I'd like to take this opportunity to express my gratitude and appreciation to all the people who have touched my life and taught me how important my little part in the ARAT is to the nation, as well as the World.

When I first joined the ARAT in October 1998, I had been a secretary with the U.S. Army for nine years and hadn't an inkling of what an ARAT was -- I quickly found out. For the past two and a half years, I've learned a great deal from my peers and from our customers through attending briefings, creating minutes from chicken scratch notes, witnessing ARAT demos, and reading many of the articles written for the A/IEW Bulletin. The most invaluable thing I've learned is the importance of teamwork. It's not just one person, but a woven fabric of talented engineers and scientists whose knowledge and expertise keep the ARAT current and successful. It is through the ARAT that I've learned how important our Armed Forces are and how much they depend on us to keep them informed.

I'd like to thank Joe Ingrao for believing in me and giving me the opportunity to work with some truly great people. To all my co-workers, I will miss you and thank you for your support and teachings.

Submitted by Ms. Tara Hurden, SRI International

For Your Information

Coming Events!

Event	*Location*	*Date(s)*
TechNet Asia-Pacific 2001	*Sheraton Waikiki/Royal Hawaiian Hotels, Honolulu, HI*	*6-8 November 2001*
Intelligence, Surveillance & Reconnaissance/ Time Critical Targeting Conference	*NASA Langley Research Center, Langley AFB, Hampton, VA*	*14-16 November 2001*
Space & Missile Defense Symposium & Exhibition	*El Paso Convention Center, El Paso, TX*	*4-6 December 2001*
France - US Defense Industry Business Forum II	*Renaissance Harborplace Hotel, Baltimore, MD*	*10-12 December 2001*
Aviation Symposium & Exhibition	*Fairview Park Mariott, Falls Church, VA*	*7-9 January 2002*
West 2002	*San Diego Convention Center, San Diego, CA*	*15-17 January 2002*

Now Available on the Web

All 23 previous issues of the "ARAT Bulletin" and the "A/IEW Bulletin" are now available on the ARAT web site. The issues are available in HTML format for on-line viewing, as well as in PDF and MS Word 97 format for viewing and downloading.

Future issues will also be posted on the site and in the same format. You are encouraged to download any issue (or issues) for local reproduction and distribution within your agency.

The ARAT web site can be accessed at http://arat.iew.sed.monmouth army.mil/, or from a link on the A/IEW web site at http://www.iew.sed.monmouth.army.mil/

Help Us Help You

If you are moving, have moved, or your address is listed incorrectly on the mailing envelope, please call Ms. Sandra Hoffmann at (732) 530-7766 ext. 338; or email at BulletinUpdates@arat.iew.sed.monmouth.army.mil with the correct address. Many Bulletins are returned for incorrect addresses and unknown addressees. We would like to reduce the amount of returned mail and ensure that all of our customers receive the latest issue of the "A/IEW Bulletin". Thank you for your support.

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ATTENTION ELECTRONIC WARFARE OFFICERS!

Electronic Warfare Officers requiring Memory Loader/Verifier (MLV) reprogramming kits, copies of the "ARAT Software and Documentation Toolbox" CD or the "Mission Data Set Training" CD should contact either Ms. Fanny Leung-Ng (DSN: (312) 992-1859/CML: (732) 532-1859) (fanny.leung-ng@mail1.monmouth.army.mil) or R^2CIL (DSN: (312) 992-9395/9392/CML: (732) 532-9395/9392) (webmaster@arat.iew.sed.monmouth.army.mil) or fax your requests to DSN: (312) 992-8287/5238 or CML: (732) 532-8287/5238.

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